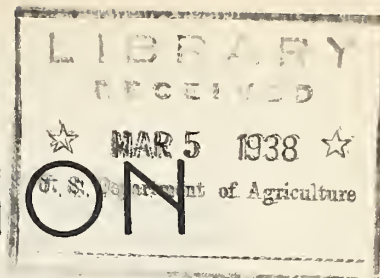


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CONSTRUCTION



HINTS

UNITED STATES DEPARTMENT OF AGRICULTURE, FOREST SERVICE
WASHINGTON, D. C.

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No. 4

Truck Trail Clearing from Center Line Stakes

Assistant Engineer William T. Corum of Region 5, has submitted the following method for use by the clearing crew in the absence of the survey party. The results obtained will not agree with accurate engineering tables, but nevertheless are satisfactory for the purpose intended. The cards can be lacquered, shellacked or varnished for protection.

The first card was made by laying out on cardboard as indicated a series of radial lines representing five degree intervals from a line perpendicular to the top edge of the card. Smaller division could have been made but degree of accuracy and simplicity favored the interval shown. Then, considering the perpendicular line as representing the vertical when the top edge is level, for each five degree angle represented on the card, the slope distance in feet to be cleared above the grade stake is placed at the end of each radial line in one quadrant, and the slope distance in feet to be cleared below the grade stake is likewise placed in the other quadrant.

(over)

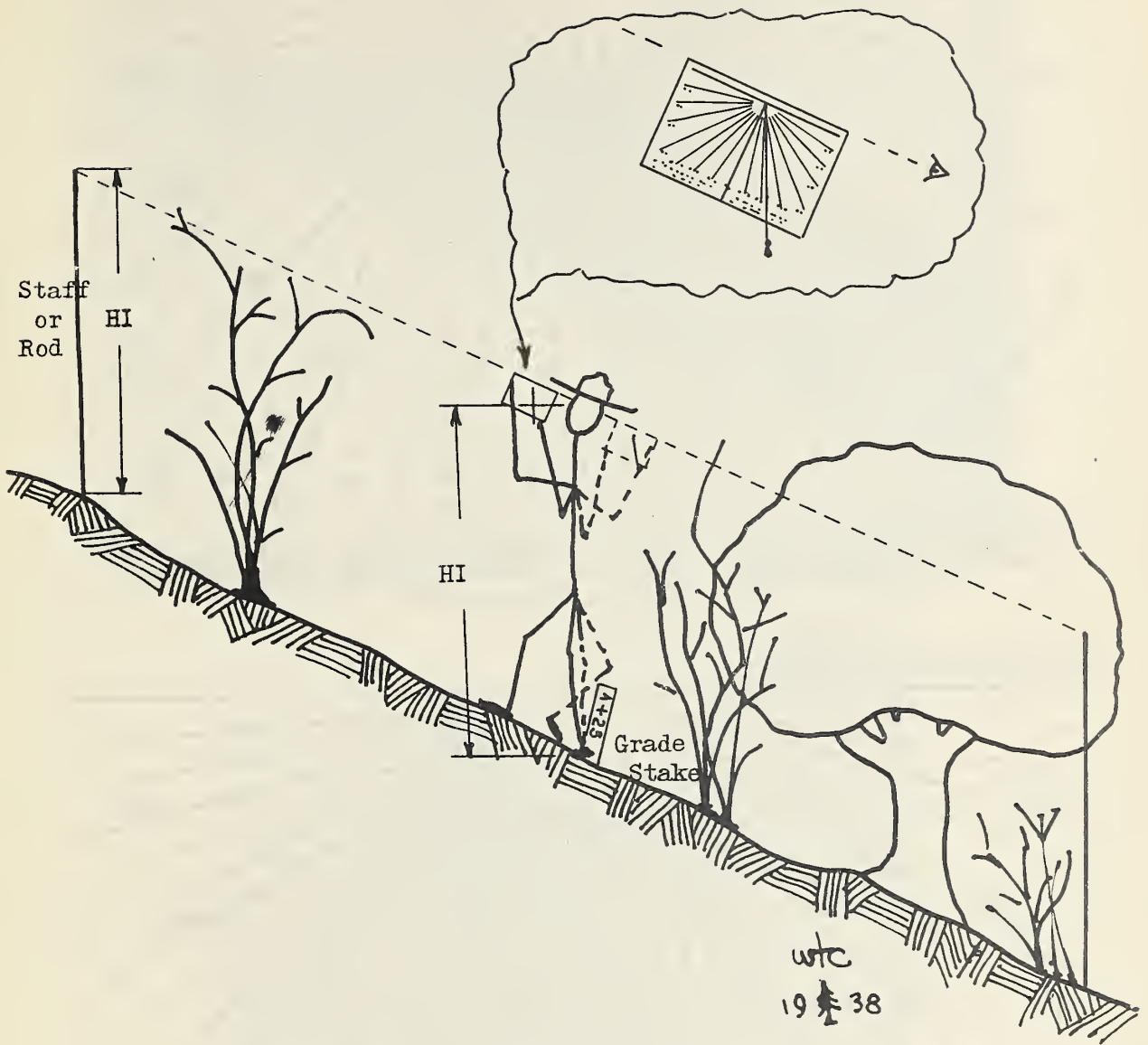
As used in actual practice a hole was punched in the card at the center point of the radiating lines, a metal eye inserted, and through that a loop of small fishing twine weighted with a piece of shot, the loop being large enough to clear all edges of the card. The clearing foreman took his station at a grade stake, and in determining the distance to be cleared above the stake sighted along the top edge of the card uphill to some object or measured staff the same height from the ground as his eye or H.I. as then his line of sight would be roughly parallel to the slope of the ground. (Such a "shot" necessarily has to be as nearly perpendicular to the road line as can be judged by the observer.)

Then, with the quadrant containing the uphill figures nearest the user, with the loop of string hanging free, and sighting along the upper edge of the card to the proper elevation, the observer firmly pressed the free hanging loop to the card and turning the card over read the slope along which he has been sighting, and the distance to be cleared up that slope above the grade stake. Interpolations can easily be made between the figures shown, likewise the distances to be cleared below the stake can be determined by sighting down hill with the same edge of the card to the observer as used in the uphill shot.

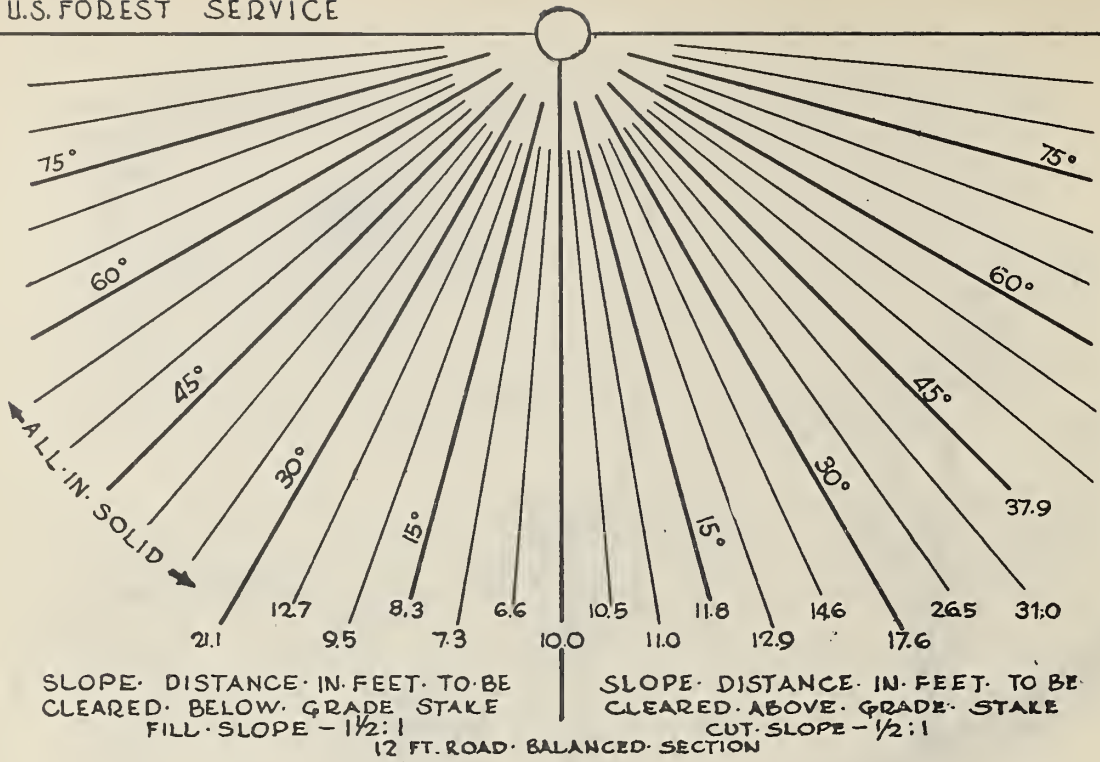
Figures for two different widths of road were used on the particular card submitted, one for a width of 12 feet, the standard width of the road, and one for a width of 18 feet, the width of turn outs specified for that particular standard width.

The data for the other two cards for through-cuts and fills on centerline stakes were checked by tables but their construction was wholly graphical. The centerline cut and fill figures were laid off graphically, as indicated, fill slopes $1\frac{1}{2}:1$ and cut slopes $\frac{1}{2}:1$. Other slopes could be used quite as easily.

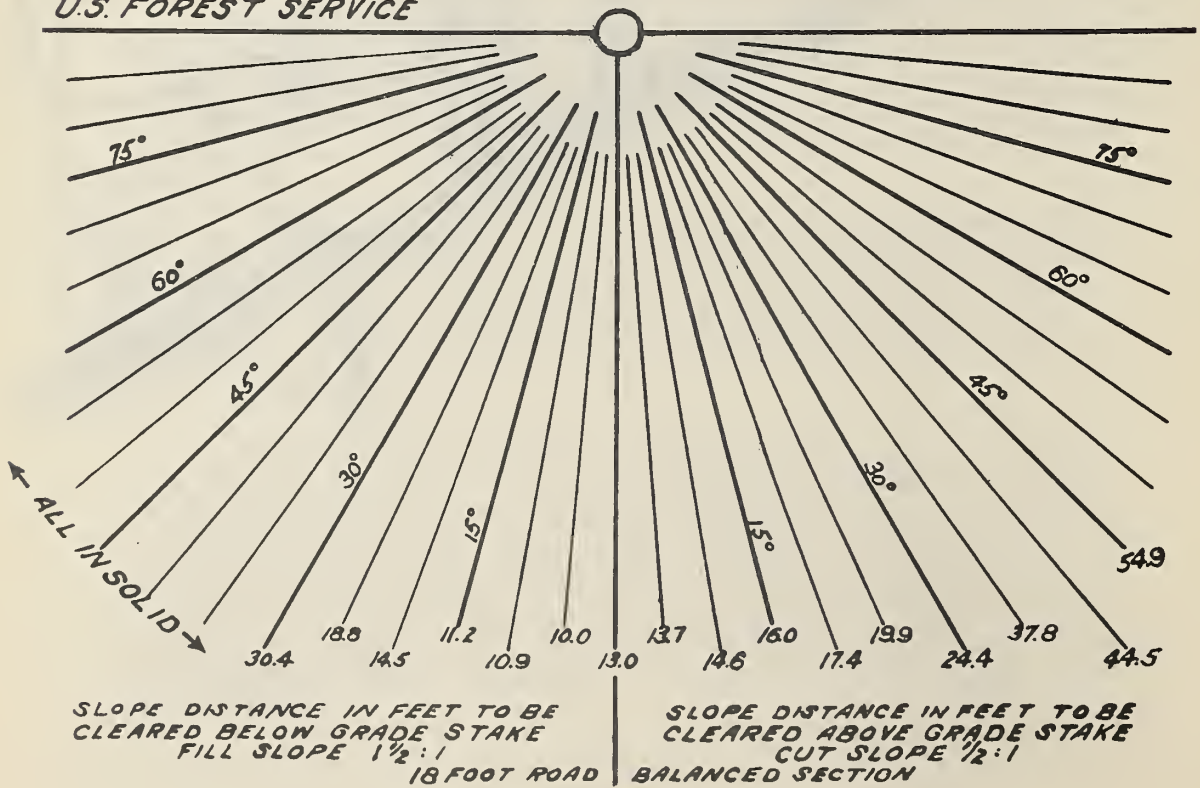
These cards are used in the same manner as the first one described above, by keeping the quadrant with the "up hill" figures toward the user, pressing the loop against the card for any observation, and interpolating the intersection of the loop with the nearest line representing the centerline cut or fill as the case may be, the slope distance desired can readily be found at the end of the arc nearest the intersection. The cards were made of such size as to be easily carried in a shirt pocket.

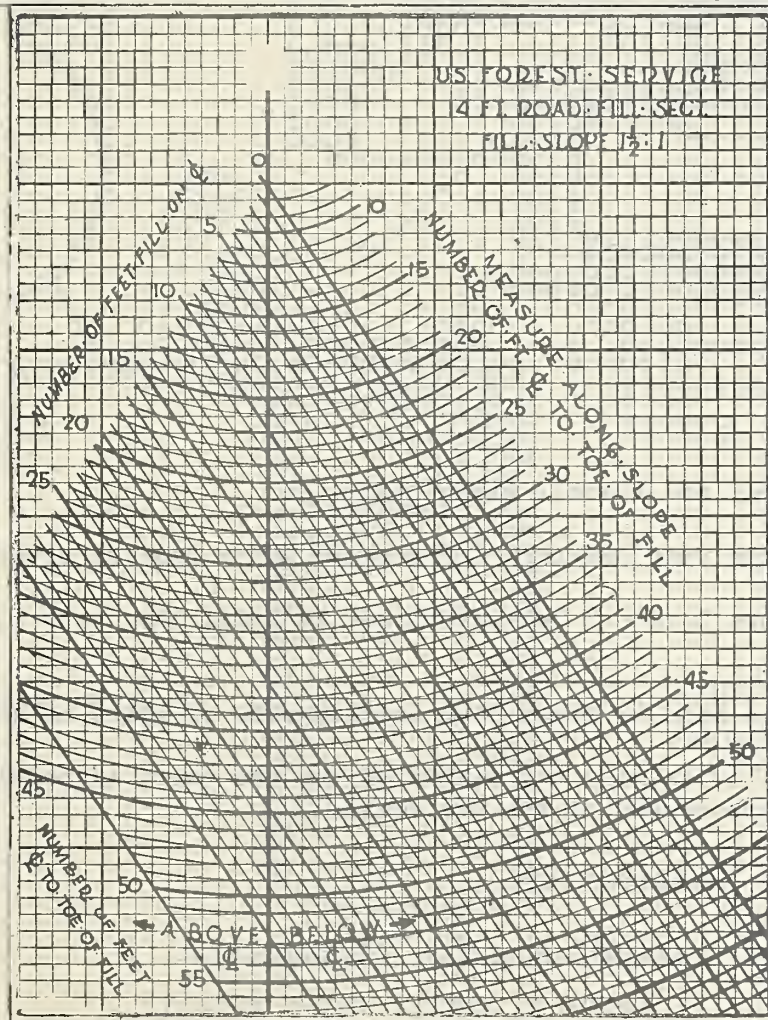
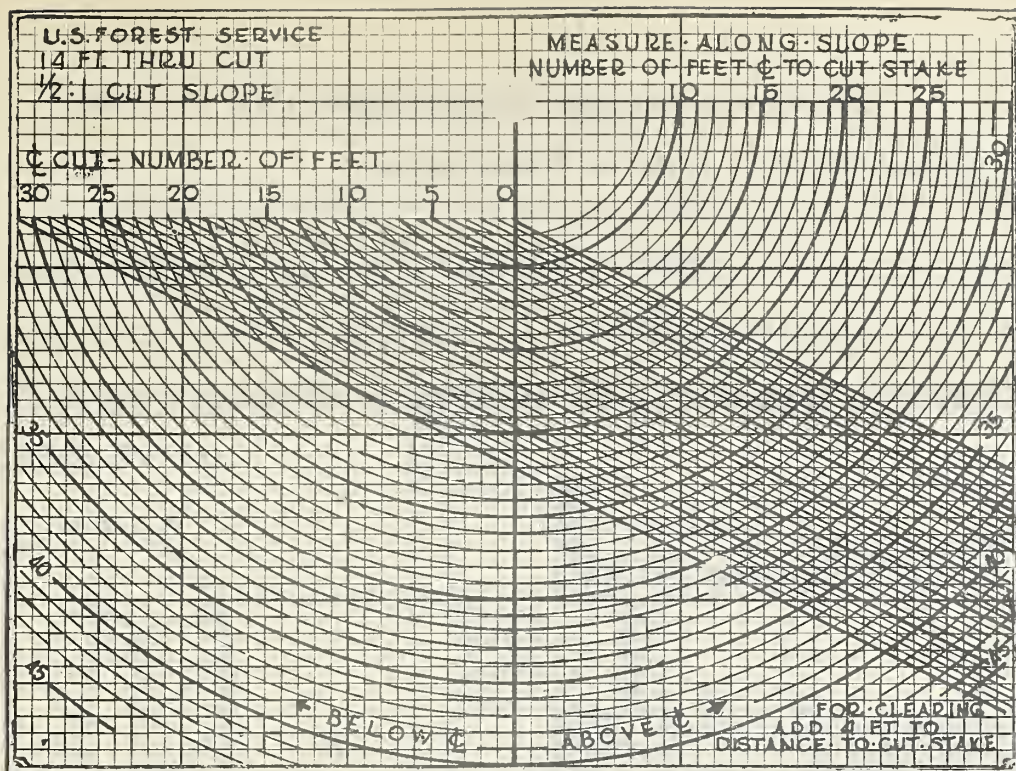


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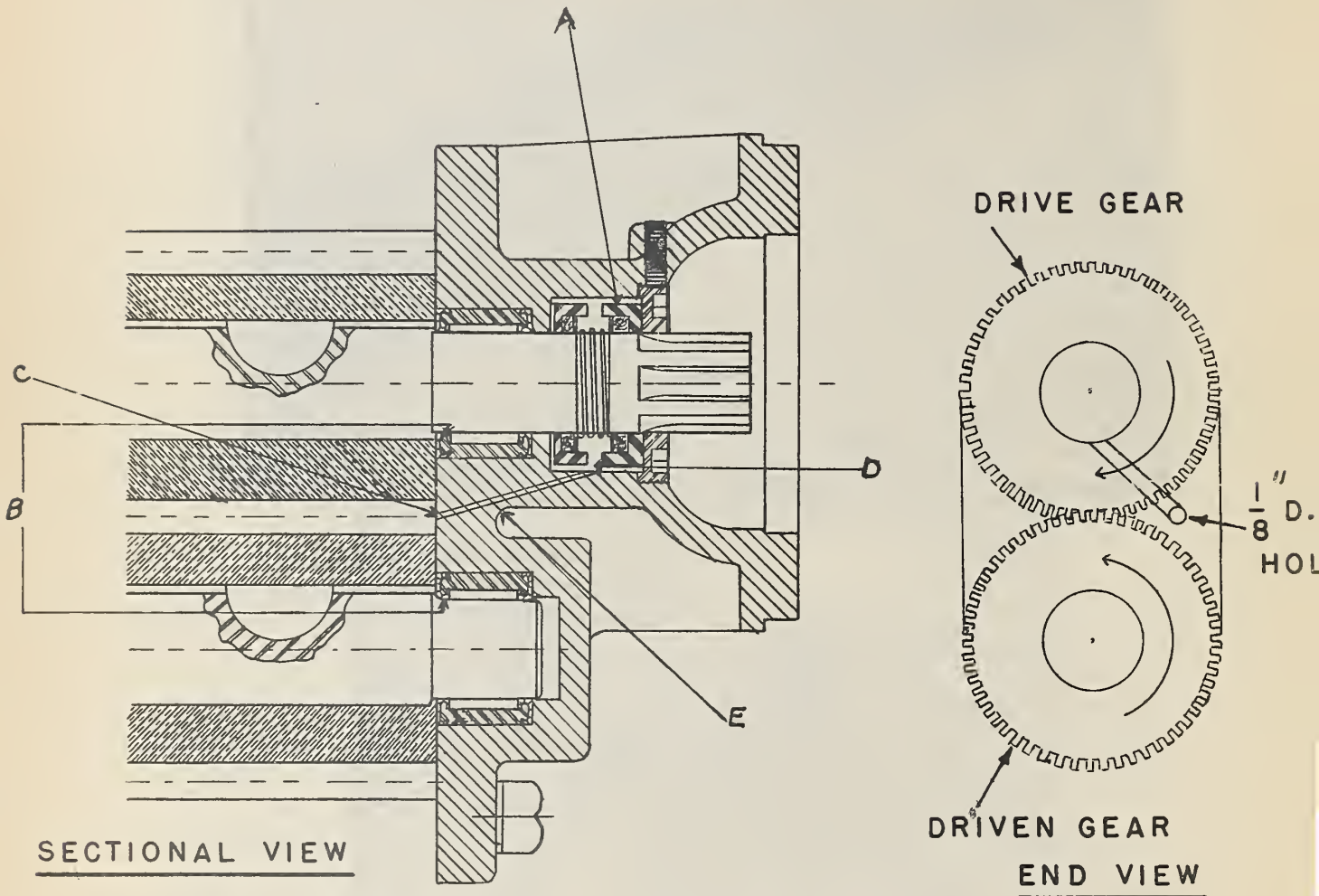
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Improvements for Wood Isaacson Roadbuilder Oil Pump.

To prevent oil from entering Transmission.



A - Remove slotted rings and install Plain rings.

B - Care should be taken that bearings are pressed below face of cover.

C - Drill 1/8" hole thru to D - " Be careful not to drill thru case at E."

In drilling hole be sure to start from suction side of gears as shown in end view.

Hole is to be drilled as near the center of the two gears as possible, and also come out between the center of the two seals.

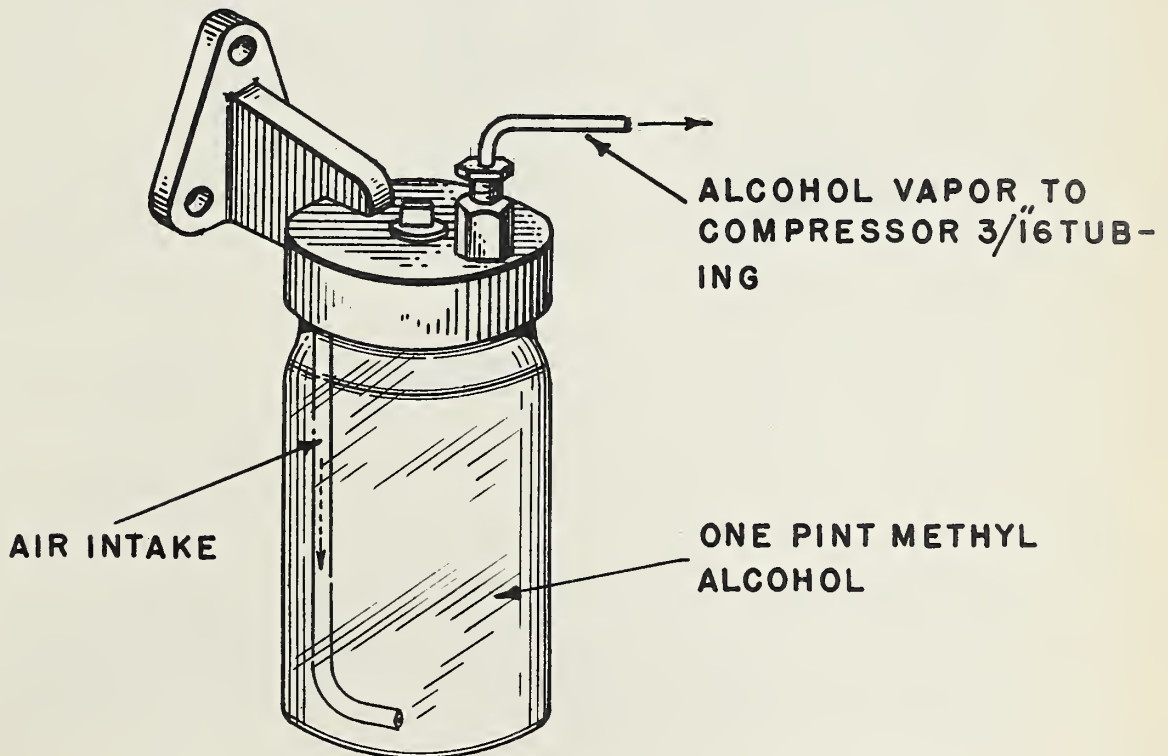
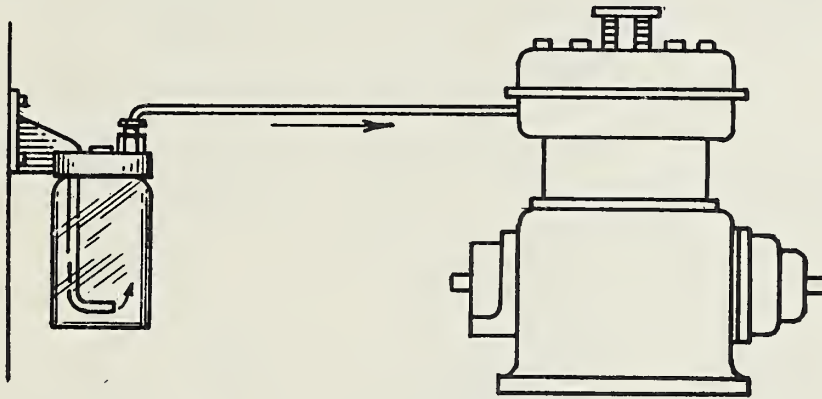
Submitted by-

Arthur E. Newell

ARTHUR E. NEWELL Chief Mechanic.

ALCOHOL EVAPORATOR

An auxiliary device for supplying alcohol vapor to the compressor intake, is now being marketed by Bendix, and has been used successfully by R-5. This vapor is distributed throughout the braking system with the air to lower the freezing point of entrapped moisture.



SERVICE CHART



CONDITION	CAUSE	REMEDY
Slow Pressure Build Up In Reservoirs	Leaking application or brake valve.	Clean valves or replace with reconditioned unit.
	Leaking compressor discharge valve.	Clean valve or replace head with reconditioned unit.
	Leaking lines or connections.	Replace tubing and fittings or tighten fittings.
	No clearance on unloader valves.	Adjust valve to .010" clearance.
	Clogged air cleaner.	Clean.
Quick Loss of Reservoir Pressure When Motor Is Stopped	Worn piston and rings, carbon in discharge line.	Replace with reconditioned unit.
	Worn and leaking compressor discharge valves.	Clean valves or replace head with reconditioned unit.
	Tubing or connections leaking.	Replace tubing or tighten fittings.
	Leaking valves.	Clean or replace unit.
	Leaking governor.	Clean or replace unit.
Compressor Not Unloading	Broken unloader diaphragm.	Install new diaphragm.
	Too much clearance on unloader valves.	Adjust to .010" clearance.
	Restriction in line from governor to unloader.	Replace tubing or clean.
	Governor not operating.	Replace with reconditioned unit.
Slow Brake Application	Low brake line pressure (Brake valve to chambers).	Adjust pressure through valve.
	Brake chamber push rod travel excessive.	Adjust brakes.
	Restriction in line.	Clean or replace tubing or hose.
	Leaking brake chamber diaphragm.	Replace diaphragm.
	Brake lining or Drum condition.	Replace or recondition.
Slow Brake Release	Leaking brake valve diaphragm.	Replace diaphragm or complete unit.
	Brake valve lever not returning fully to stop.	Adjust operating rod.
	Binding cam or cam shafts.	Lubricate and align properly.
	Brake chamber push rod travel excessive.	Adjust brakes.
	Restriction in tubing or hose.	Clean or replace.
Inefficient Brakes	Improper seating of valves.	Clean or replace with a reconditioned unit.
	Low brake line pressure.	Adjust pressure through brake valve.
	Excessive push rod travel on brake chambers.	Adjust brakes.
	Lining and drum condition.	Replace or repair.
	Brake chamber diaphragm leaking.	Replace diaphragm.